PAT-NO: JP407052428A

DOCUMENT-IDENTIFIER: JP 07052428 A

TITLE: PRINTER

PUBN-DATE: February 28, 1995

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APPL-NO: JP05228277

APPL-DATE: August 21, 1993

INT-CL (IPC): B41J002/325 , B41J013/00 , B41J029/00 , B41J035/16 , B41M005/26

ABSTRACT:

PURPOSE: To prevent forgery and alteration by a laminate formed on a photographic face by means of a simple constitution and improve the design effect thereof.

CONSTITUTION: Forgery and alteration can be prevented by a laminate formed on a printing face by means of a simple constitution and the design effect can be improved by coating over the printing face of a printing medium 37 while a printing pattern for one printing face stored in a memory 86 is formed on a film-like sheet F by means of a heat transfer head.

Document Identifier - DID (1):

JP 07052428 A

(19)日本国特許庁（ＪＰ）　(12)**公開特許公報**（Ａ）　(11)特許出願公開番号

特開平7－52428

(43)公開日　平成７年(1995)２月28日

(51)Int.Cl.[6]	識別記号	庁内整理番号	ＦＩ	技術表示箇所
Ｂ４１Ｊ　2/325				
13/00				
29/00				
			Ｂ４１Ｊ　3/20　117　Ｃ	
			29/00　Ｈ	

審査請求　未請求　請求項の数３　ＦＤ　（全９頁）　最終頁に続く

(21)出願番号　特願平5－228277

(22)出願日　平成５年(1993)８月21日

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(54)【発明の名称】　印刷装置

(57)【要約】
【目的】本発明は、印刷装置に関し、簡易な構成で印画面上に形成したラミネートで偽造や改ざんを防止すると共に意匠的効果を向上する。
【構成】熱転写ヘツドでフイルム状シートＦにメモリ手段８６に記憶された１印画面分の印刷パターンを形成しながら印刷媒体３７の印画面上を覆うようにしたことにより、簡易な構成で印画面上に形成したラミネートで偽造や改ざんを防止すると共に意匠的効果を向上し得る。

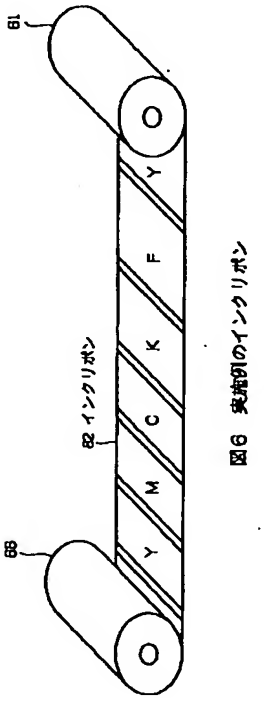

図６　実施例のインクリボン

1

【特許請求の範囲】
【請求項１】インクリボン上に配された色インクで所定の印刷媒体の印画面上に所定の印刷を行うと共に、上記インクリボン上に上記色インクに続いて配されたフイルム状シートを熱転写ヘツドで上記印画面上に転写する印刷装置において、
上記フイルム状シートを上記熱転写ヘツドで転写する際に、１印画面分の印刷パターンを記憶するメモリ手段を具え、上記熱転写ヘツドで上記フイルム状シートに上記印刷パターンを形成しながら上記印刷媒体の上記印画面上を覆うようにしたことを特徴とする印刷装置。
【請求項２】上記メモリ手段は、上記色インクに応じた１画面分の印刷パターンをそれぞれ記憶する色メモリ手段と別に設けるようにしたことを特徴とする請求項１に記載の印刷装置。
【請求項３】上記メモリ手段は、上記色インクに応じた１画面分の印刷パターンを時分割で記憶する色メモリ手段と兼用するようにしたことを特徴とする請求項１に記載の印刷装置。
【発明の詳細な説明】
【０００１】
【目次】以下の順序で本発明を説明する。

【０００２】
【産業上の利用分野】本発明は印刷装置に関し、例えばカード状印刷媒体にカラー画像を印刷するカード印刷装置に適用して好適なものである。
【０００３】
【従来の技術】従来、カード状の印刷媒体に染料熱転写方式でカラー画像を印刷するカード印刷装置がある。この種のカード印刷装置においては、カラー写真等から光学的に読み取つたカラー画像情報や、ビデオカメラで撮影したカラー画像情報に基づいて、インクリボンに等間隔で塗布されているイエロー、マゼンタ、シアン及びブラツク等の染料を、熱転写ヘツドによつてカード状印刷媒体（以下カードと呼ぶ）上に順次重ねて熱転写することにより、カード上にカラー画像を印刷するようになされている（特開昭62-11370号公報）。
【０００４】
【発明が解決しようとする課題】ところでカード印刷装置においては、インクリボン上にイエロー、マゼンタ、

2

シアン及びブラツクの色染料に続いて配されたフイルム状シートを熱転写ヘツドで印画面上に転写し、これにより専用のラミネート装置を用いずにカードにラミネートを施すようなものがある。またこのようなカード印刷装置で、例えば入出者の識別等に使用する識別カードいわゆるＩＤカードを印刷するものがあり、このような場合ＩＤカードの機密性すなわちセキユリテイ性が問題になつてくる。
【０００５】例えば銀行カードやクレジツトカード等においては、カード表面のラミネート上にホログラムを配して容易に偽造や改ざんができないように工夫されたものがあり、高いセキユリテイ性を有するカードが実現されている。従つてカード印刷装置を用いてＩＤカードを印刷する際にも、容易に偽造や改ざんができないようなＩＤカードを印刷できれば、カード印刷装置としての有用性を格段的に向上し得ると考えられる。またＩＤカードに限らず一般的なカード印刷装置では、プリントサンプルの風格を高めるために、例えば銀塩写真でのマツト処理のような加工を施すことができれば、カード自体の意匠的効果を向上し得ると考えられる。
【０００６】本発明は以上の点を考慮してなされたもので、簡易な構成で印画面上に形成したラミネートで偽造や改ざんを防止すると共に意匠的効果を向上し得る印刷装置を提案しようとするものでるある。
【０００７】
【課題を解決するための手段】かかる課題を解決するため本発明においては、インクリボン６２上に配された色インクＹ、Ｍ、Ｃ、Ｋで所定の印刷媒体３７の印画面上に所定の印刷を行うと共に、インクリボン６２上に色インクＹ、Ｍ、Ｃ、Ｋに続いて配されたフイルム状シートＦを熱転写ヘツド４８で印画面上に転写する印刷装置２０において、フイルム状シートＦを熱転写ヘツド４８で転写する際に、１印画面分の印刷パターンを記憶するメモリ手段８６を設け、熱転写ヘツド４８でフイルム状シートＦに印刷パターンを形成しながらで印刷媒体３７の印画面上を覆うようにした。
【０００８】
【作用】熱転写ヘツド４８でフイルム状シートＦに、メモリ手段８６に記憶された１印画面分の印刷パターンを形成しながら印刷媒体３７の印画面上を覆うようにしたことにより、簡易な構成で印画面上に形成したラミネートで偽造や改ざんを防止すると共に意匠的効果を向上し得る。
【０００９】
【実施例】以下図面について、本発明の一実施例を詳述する。
【００１０】（１）カード印刷装置の全体構成
図１及び図２において、２０は全体としてカード印刷装置を示し、筐体２１内部に印刷部、カード搬送部、画像処理部及び各種の駆動機構等が内蔵されている。カード

印刷装置２０の筐体前面にはカードカセット挿入口２２が設けられ、このカード挿入口２２に印刷媒体としてのカードが複数積載されたカードカセット２３が装填される。また筐体２１の前面にはリボンカセット挿入口２４が設けられ、所定のリボンカセット２５が挿入される。さらに筐体２１の前面には電源スイッチ２６やカード印刷装置２０の動作状態を表示するＬＥＤ表示部２７等が設けられている。さらにまたカードカセット挿入口２２が設けられた側に対して反対側の筐体２１の側面にはカード排出口２８が設けられ、このカード排出口２８から印刷済のカードが排出される。

【００１１】ここでカード印刷装置２０のカード搬送部及び印刷部は、図３に示すように構成されている。すなわちカード搬送部３０は、矢印ａで示すカード搬送方向に延長するように設けられたボールねじ３２が搬送台３３の下部に設けられたナット部３４を貫通され、これによりボールねじ３２をパルスモータ３５によつて回転させることにより、搬送台３３を図中実線で示すカード載置位置から一点鎖線で示すカード排出位置まで移動させる。このとき搬送台３３は矢印ａで示す搬送方向に延長するように設けられた１対のリニアシヤフト（図示せず）により摺動自在に支持されていることにより、水平な状態で矢印ａの方向又はこれとは逆方向に移動する。

【００１２】カードカセット２３の近傍位置にはカード送出部３６が設けられ、このカード送出部３６によつてカードカセット２３内に積重されたカード３７を搬送台３３の方向に送出する。すなわちカード送出部３６は、モータ３８と、モータ３８によつて回転駆動される歯車３９と、歯車３９に歯合する歯車４０と、歯車４０の上面に固定された半月状のキツク板４１とにより構成され、キツク板４１を所定のタイミングで回転させることにより、カードカセット２３内の最下位置のカード３７が搬送台３３の方向に蹴り出される。

【００１３】搬送台３３の方向に蹴り出されたカード３７は、モータ４２により回転駆動されるカード搬出用ローラ４３及び４４間に挟まれると共に、伝達機構（図示せず）を介してモータ４２により回転駆動されるカード搬出用ローラ４５によつて搬送台３３上に載置される。ここでカード搬出用ローラ４３及び４４とカード搬出用ローラ４５との間にはクリーニングローラ４６が設けられ、これにより印刷に先だつてカード３７の印刷面がクリーニングされる。また搬送台３３の上面にはカード保持部４７が設けられ、これによりカード３７の水平方向の移動を規制する。

【００１４】また熱転写ヘツド４８の両側の搬送経路には、本体シヤーシ（図示せず）に固定された浮上り防止部材４９及び５０が設けられている。浮上り防止部材４９及び５０は複数のローラ５１を有し、このローラ５１が搬送台３３上に載置されたカード３７に当接することにより、搬送中及び印刷中の搬送台３３からのカード３７の浮上りを防止する。

【００１５】ここで印刷が終了したカード３７は、カード排出用ローラ５２、５３及び５４によつて搬送台３３上を矢印ａの方向に摺動され、カード排出口２８を介して外部に排出される。すなわちカード排出用ローラ５２は、モータ５５の駆動力を歯車５６を介して受けて時計方向に回転すると共に、排出用ローラ５３及び５４はモータ５５の駆動力を互いに歯合した歯車５６、５７及び５８を介して受けて時計方向に回転し、この結果搬送台３３上のカード３７を矢印ａの方向に摺動させる。またこのとき搬送台３３の近傍位置に設けられたレバー解除軸５９によつてカード保持部４７によるカード３７の前方方向への規制が解除される。

【００１６】なおこのカード印刷装置２０においては、カード３７の移動状態や搬送台３３の位置が光学センサによつて検出され、カード３７や搬送台３３が正しい位置に位置決め制御される。すなわちセンサＳ２はカードカセット２３が装填されたか否かを検出し、センサＳ３はカードカセット２３内にカード３７があるか否かを検出し、センサＳ４はキツク板４１の回転位置を検出し、センサＳ５はカードカセット２３からカード３７が搬出されたか否かを検出し、センサＳ６は搬送台３３上にカード３７が載置されたか否かを検出し、センサＳ７はカード３７が排出されたか否かを検出する。

【００１７】また搬送台３３の側面に形成された検出用突起６０に基づいて、各センサＳ８、Ｓ９及びＳ１０は搬送台３３の位置を検出する。すなわちセンサＳ８は搬送台３３がカード供給位置に到達したか否かを検出し、センサＳ９は搬送台３３が印刷開始位置に到達したか否かを検出し、センサＳ１０は搬送台３３がカード排出位置に到達したか否かを検出する。

【００１８】印刷部３１は供給リール６１に巻回されたインクリボン６２を、リボンガイド６３及び６４によつて支持した状態で、直流（ＤＣ）モータ６５により回転駆動される巻取リール６６によつて巻き取る。供給リール６１にはトルクリミツタ（図示せず）が配置され、一定のトルクでインクリボン６２にバツクテンシヨンを与える。また巻取リール６６には光学センサ構成でなる巻径検出用エンコーダ（図示せず）が配置されている。

【００１９】インクリボン６２には１頁分の染料としてイエロー、マゼンタ及びシアンの色染料がそれぞれ所定の長さで塗布されている。またインクリボン６２は各頁分の色染料の先頭位置に頁先頭マークが塗布されていると共に、各色染料の先頭位置に各色を識別する色識別マークが塗布されている。これにより印刷装置２０では、インクリボン６２の走行経路に設けられた光学センサ（図示せず）がそれぞれ頁先頭マーク及び色識別マークを検出し、この検出結果に基づいてインクリボン６２のテンシヨン制御を行う。

【００２０】熱転写ヘツド４８が設けられたヘツドユニ

5

ット７０は回動軸７１によつて回動自在に保持された加圧レバー７２の一端に着脱自在に取り付けられている。加圧レバー７２の他端はリンク７３を介してカム板７４に揺動自在に取り付けられている。これによりヘツドユニツト７０は、カム板７４が所定のモータ（図示せず）によつて回転駆動されることにより昇降され、図３に示す中間位置、この中間位置から上昇してインクリボン６２から離間する初期位置、中間位置から下降してカード３７に当接する最下位置に位置決めされている。

【００２１】すなわちヘツドユニツト７０はインクリボン６２を装填する際等には初期位置に移動し、搬送台３３上にカード３７が載置された際には中間位置に移動し、搬送台３３が印刷開始位置に到達した際には最下位置に移動する。カード印刷装置２０においては、このヘツドユニツト７０の昇降状態をカム板７４の切欠部の近傍に設けられた光学センサＳ１１及びＳ１２によつて検出する。熱転写ヘツド４８は端面型の構成でなり、紙面に垂直なカード３７の幅方向全体に亘つてカード３７に当接する。これによりカード３７が矢印ａの方向に移動するとカード３７の印刷面全面に亘つて所望の画像を印画し得るようになされている。

【００２２】ここでこのカード印刷装置２０による実際の印刷は、図４及び図５に示す印刷動作手順ＳＰ０に従つて実行される。すなわち先ず印刷動作手順ＳＰ０から入つて次のステツプＳＰ１において、カード３７をカードカセツト２３より取り出し、次のステツプＳＰ２においてカード３７が取り出されたか否か判断し、否定結果を得た場合にはステツプＳＰ３に移つて、カード切れ等を表示するエラー処理を行う。

【００２３】一方カード３７が取り出された場合には、ステツプＳＰ４に移つてカード３７を搬出し、ステツプＳＰ５においてカード３７が搬出されたか否か判断し、否定結果を得るとステツプＳＰ４を繰り返し、肯定結果の場合には次のステツプＳＰ６に移つてカード３７を搬送台３３上に載置する。続いてステツプＳＰ７において、搬送台３３を熱転写ヘツド４８の位置に位置決めし、搬送台３３を停止する。なおこのとき熱転写ヘツド４８は上昇した位置（初期位置）にある。

【００２４】次にステツプＳＰ８において、カム板７４の駆動モータが駆動され熱転写ヘツド４８を中間位置まで下ろし、次のステツプＳＰ９において、インクリボン６２の１頁分の頭出しを行う。続いて次のステツプＳＰ１０において、インクリボン６２の巻径を検出し、ステツプＳＰ１１において検出された巻径に応じてＤＣモータ６５の駆動条件を設定する。

【００２５】続いてステツプＳＰ１２において、再びカム板７４の駆動モータが働いて熱転写ヘツド４８を最下位置まで下ろし、ステツプＳＰ１３においてＤＣモータ６５を駆動してインクリボン６２の巻取りを開始し、ステツプＳＰ１４において所定ライン数（α）だけ搬送台

6

３３を移動させる。次にステツプＳＰ１５において１色分の印画を開始し、ステツプＳＰ１６において１色分の印画として 965ライン分だけ印画し、次のステツプＳＰ１７において、１色分の印画を終了しインクリボン６２を剥離し、搬送台３３を所定ライン数（β）だけ移動させる。

【００２６】続いてステツプＳＰ１８において熱転写ヘツド４８を中間位置まで上げ、次のステツプＳＰ１９において、３色分の印画が終了したか否か判断し、否定結果を得ると、次のステツプＳＰ２０において搬送台３３を 965ラインにα及びβラインを加えたライン数分だけ戻す。また次のステツプＳＰ２１において次の色のインクリボン６２の頭出しを行つた後、上述のステツプＳＰ１２に戻つて１色分の印画処理を行う。やがてステツプＳＰ１９で肯定結果を得ると、ステツプＳＰ２２において、カード３７を排出し、このようにしてカード３７上にカラー印画し得るようになされている。

【００２７】（２）実施例のカード印刷装置

ここでこの実施例のカード印刷装置２０においては、カード３７として入出者の識別等に使用するＩＤカード３７を印刷し得るようになされ、印画面として入出者の氏名や顔写真等が印刷される。またこのＩＤカード３７の印画面上は所定の文字の繰り返しパターン等が透かし模様状に配されたフイルム状シートでラミネートされている。

【００２８】この実施例の場合インクリボン６２は、図５に示すように、１頁分の染料としてそれぞれ所定の長さで塗布されたイエローＹ、マゼンタＭ及びシアンＣの各色染料に続いて、フイルム状シートＦが配されている。これによりこのカード印刷装置２０ではフイルム状シートＦを熱転写ヘツド４８でＩＤカード３７の印画面上に転写してラミネートする。

【００２９】またこのとき熱転写ヘツド４８でフイルム状シートＦに所定の文字の繰り返しパターン等を印刷することにより、印刷された繰り返しパターンでフイルム状シートＦに透かし模様が形成され、このフイルム状シートＦをラミネートすることにより、容易に印画面の情報を偽造や改ざんができず高いセキユリテイ性を有するＩＤカード３７を印刷し得る。

【００３０】実際上このカード印刷装置２０は、図６に示すような回路ブロツクで構成されいる。すなわちホストコンピユータ（図示せず）より入力される印刷データＳ１は、各色毎に１印画面分の容量を有するフレームメモリ８０（８０Ｙ、８０Ｍ、８０Ｃ、８０Ｋ）に色別に一旦書き込まれる。この書込みは、バスでＣＰＵ８１に接続されたメモリコントローラ８２を通じて、ＣＰＵ８１より制御される。

【００３１】このフレームメモリ８０に書き込まれた印刷データＳ１は、メモリコントローラ８２によつて所定のタイミングで読み出され、このうちイエロー、マゼン

タ及びシアンにそれぞれ対応する色印刷データＳＹ、ＳＭ、ＳＣが各色毎の色調整回路８３（８３Ｙ、８３Ｍ、８３Ｃ）で印刷に応じた色調整され、マスキング回路８４を通じてセレクタ８５に入力される。またフレームメモリ８０に書き込まれた黒色用の色印刷データＳＫは、色調整やマスキングの必要がないことにより、所定のタイミングで読み出され、そのままセレクタ８５に送出される。

【００３２】さらにこの実施例のカード印刷装置２０では、フレームメモリ８０と同様に１印画面分の記憶容量を有するラミネートメモリ８６を有し、フイルム状シートＦに形成する所定の文字の繰り返しパターン等を表すラミネート印刷データＳＦが一旦書き込まれる。このラミネートメモリ８６もフレームメモリ８０と同様にメモリコントローラ８２によつて制御される。またラミネートメモリ８６に書き込まれたラミネート印刷データＳＦは、黒色の色印刷データＳＫと同様に色調整やマスキングの必要がないことにより、所定のタイミングで読み出され、そのままセレクタ８５に送出される。

【００３３】セレクタ８５はＣＰＵ８１の制御によつて、図４及び図５に上述したような印刷動作手順に準じて、イエロー、マゼンタ及びシアンにそれぞれ対応する色印刷データＳＹ、ＳＭ、ＳＣ、黒色用の色印刷データＳＫ、ラミネート印刷データＳＦを順次選択して印刷出力データＳ２としてγ補正回路８７に送出する。γ補正回路８７はＣＰＵ８１の制御に基づいて設定された熱補正係数によつて、濃度通電時間変換すなわちγ補正を行い、この結果得られる印刷出力データＳ３がサーマルヘツドコントローラ８８で印画エネルギーＳ４に変換され、熱転写ヘツド４８で印刷される。

【００３４】以上の構成において、このカード印刷装置２０の場合、ホストコンピユータ側から所定の印画面を表す印刷データＳ１として、イエロー、マゼンタ、シアン及び黒の色印刷データＳＹ、ＳＭ、ＳＣ、ＳＫ、ラミネート印刷データＳＦが順次入力される。このうち色印刷データはそれぞれの色に対応するフレームメモリ８０（８０Ｙ、８０Ｍ、８０Ｃ、８０Ｋ）に書き込まれ、ラミネート印刷データＳＦはラミネートメモリ８６に書き込まれる。

【００３５】フレームメモリ８０、ラミネートメモリ８６に書き込まれた印刷データＳＹ、ＳＭ、ＳＣ、ＳＫ、ＳＦは必要に応じて色調整されると共にマスキングされ、セレクタ８５に送出される。セレクタ８５では色印刷順序に応じて、色印刷データＳＹ、ＳＭ、ＳＣ、ＳＫ及びラミネート印刷データＳＦの順にγ補正すると共に、印画エネルギーに変換し熱転写ヘツド４８に供給する。

【００３６】これによりこのカード印刷装置２０では、例えば入出者の識別情報として氏名や顔写真等をカラー印刷すると共に、所定の文字の繰り返しパターン等が透かし模様状に配されたフイルム状シートＦでラミネートしたＩＤカード３７を印刷し得るようになされている。このようにＩＤカード３７を透かし模様が配されたフイルム状シートＦでラミネートすることにより、新たにラミネートメモリ８６を設けた簡易な構成で、容易に偽造や改ざんができず高いセキユリテイ性を有するＩＤカード３７を印刷できる。

【００３７】以上の構成によれば、フイルム状シートＦを熱転写ヘツド４８で転写する際に、ラミネートメモリ８６に書き込まれたラミネート印刷データで熱転写ヘツド４８を駆動しながら転写するようにしたことにより、ラミネート印刷データＳＦに応じた印刷パターンが形成されたフイルム状シートＦでＩＤカード３７をラミネートすることができ、偽造や改ざんが困難で高いセキユリテイ性を有するＩＤカード３７を容易に印刷し得るカード印刷装置２０を実現できる。

【００３８】（３）他の実施例

なお上述の実施例においては、ラミネート印刷データとして所定の文字の繰り返しパターン等で透かし模様を形成したフイルム状シートでカードをラミネートして高いセキユリテイ性を得るようにしたが、ラミネート印刷データはこれに限らず、例えば市松模様や所定の凹凸模様等でも良く、このようにすれば、印画面上に銀塩写真でのマツト処理のような加工を施すことができ、カード自体の意匠的効果を向上し得る。

【００３９】また上述の実施例においては、色印刷データ用のフレームメモリに加えて、ラミネート印刷データ用のラミネートメモリを設けた場合について述べたが、色印刷用のフレームメモリが時分割で用いられるような場合には、ラミネート印刷データも色印刷用のデータに続いて時分割で用いるようにしても上述の実施例と同様の効果を実現できる。

【００４０】さらに上述の実施例においては、本発明による印刷装置として、ＩＤカード等の印画面上に所定の情報を印刷するカード印刷装置に適用したが、本発明はこれに限らず、紙や他の印刷媒体に印刷する印刷装置に広く適用して好適なんものである。

【００４１】

【発明の効果】上述のように本発明によれば、熱転写ヘツドでフイルム状シートにメモリ手段に記憶された１印画面分の印刷パターンを形成しながら印刷媒体の印画面上を覆うようにしたことにより、簡易な構成で印画面上に形成したラミネートで偽造や改ざんを防止すると共に意匠的効果を向上し得る印刷装置を実現できる。

【図面の簡単な説明】

【図１】本発明による印刷装置の一実施例の外観構成を示す斜視図である。

【図２】本発明による印刷装置の一実施例の外観構成を示す斜視図である。

【図３】本発明による印刷装置の一実施例における搬送

9　　10

部及び印刷部を示す略線的側面図である。

【図4】実施例のカード印刷装置における印刷動作の説明に供するフローチャートである。

【図5】実施例のカード印刷装置における印刷動作の説明に供するフローチャートである。

【図6】実施例のカード印刷装置に用いられるインクリボンの説明に供する略線図である。

【図7】実施例のカード印刷装置の回路構成を示すブロック図である。

【符号の説明】

20……カード印刷装置、21……筐体、28……カード排出口、30……搬送部、31……印刷部、32……ボールねじ、33……搬送台、34……ナット部、36……カード送出部、37……カード、41……キツク板、43～45……カード搬出用ローラ、46……クリーニングローラ、47……カード保持部、48……熱転写ヘツド、49、50……浮上り防止部材、51A～51D……ローラ、52～54……カード排出用ローラ、59……レバー解除軸、60……検出用突起、61……供給リール、62……インクリボン、66……巻取リール

10　70……ヘツドユニツト、72……加圧レバー、73……レバー、74……カム板、S2～S12……センサ。

【図1】

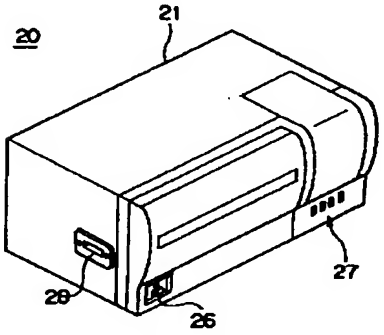

図1　外観構成（1）

【図2】

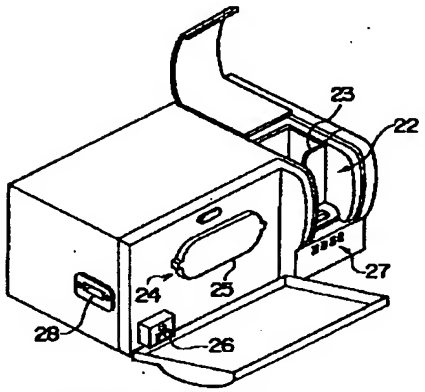

図2　外観構成（2）

【図3】

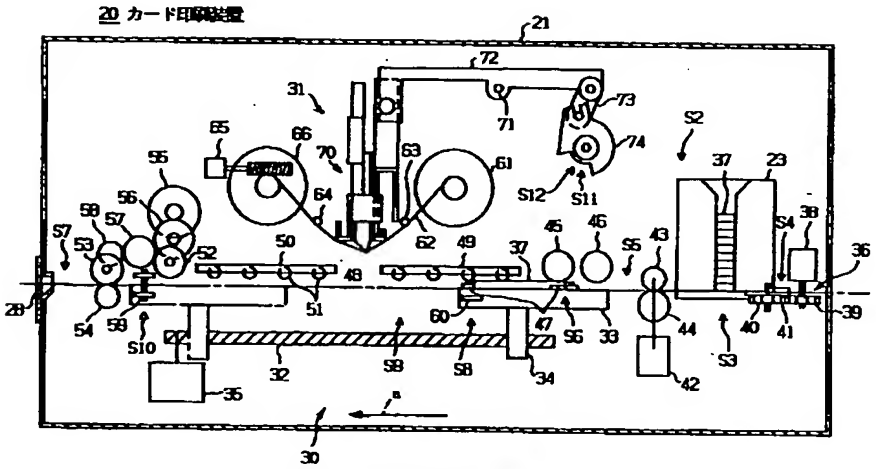

図3　搬送部及び印刷部の構成

【図4】

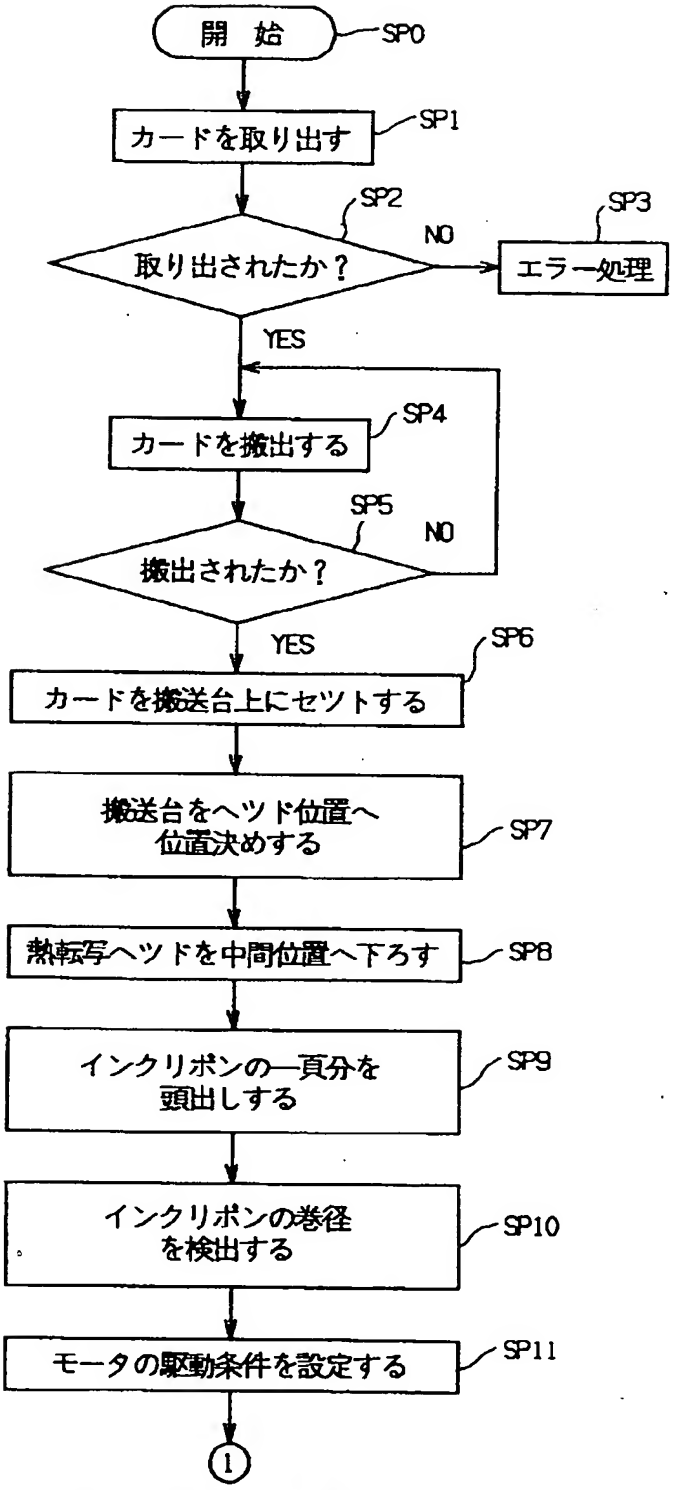

図4　印刷動作手順（１）

【図5】

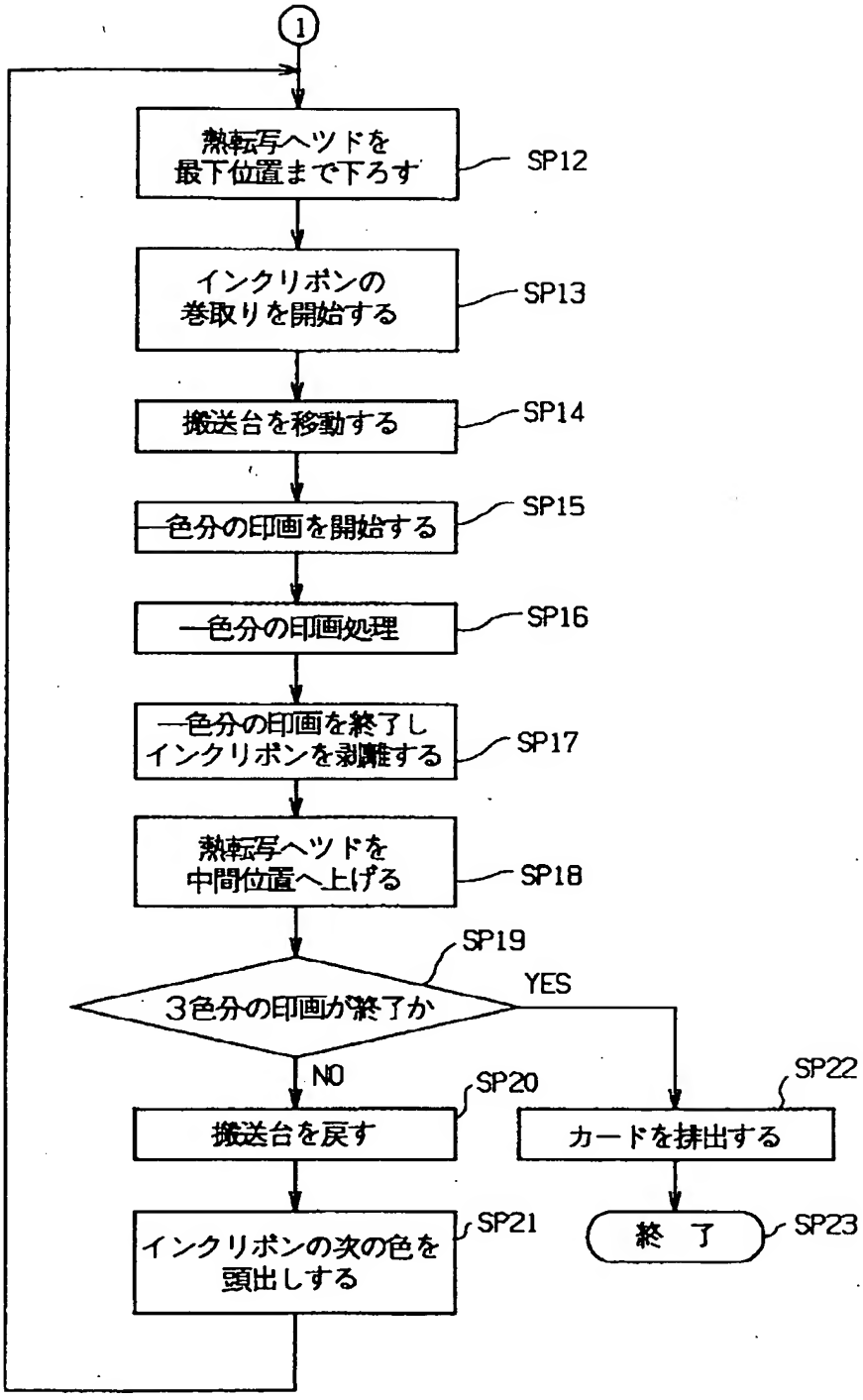

図5　印刷動作手順（２）

【図6】

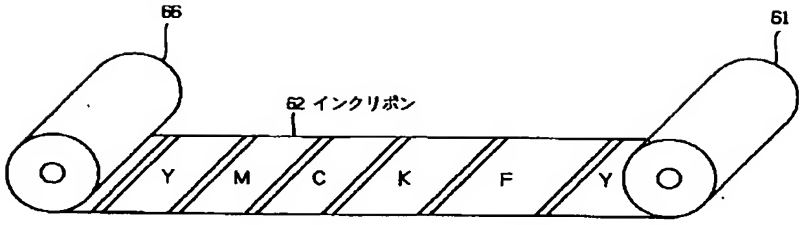

図6　実施例のインクリボン

【図7】

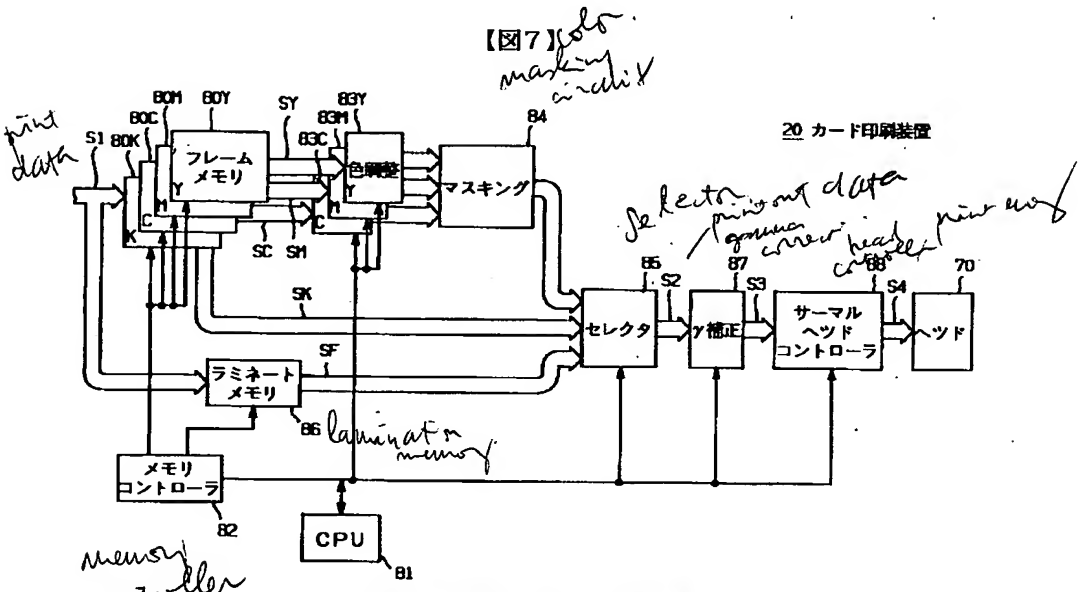

図7　実施例によるカード印刷装置

フロントページの続き

(51)Int.Cl.⁶	識別記号	庁内整理番号	FI	技術表示箇所
B41J 35/16		B		
B41M 5/26				
		9121－2H	B41M 5/26	A

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CLAIMS

[Claim(s)]
[Claim 1] While performing predetermined printing on the print side of print media predetermined in the color ink arranged on the ink ribbon In the airline printer which imprints the film-like sheet arranged following the above-mentioned color ink on the above-mentioned ink ribbon on the above-mentioned print side with a hot printing head In case the above-mentioned film-like sheet is imprinted with the above-mentioned hot printing head, it has a memory means to memorize the printing pattern of 1 print region. The airline printer characterized by covering the above-mentioned print side top of the above-mentioned print media, forming the above-mentioned printing pattern in the above-mentioned film-like sheet with the above-mentioned hot printing head.
[Claim 2] The above-mentioned memory means is an airline printer according to claim 1 characterized by making it prepare apart from a color memory means to memorize the printing pattern for one screen according to the above-mentioned color ink, respectively.
[Claim 3] The above-mentioned memory means is an airline printer according to claim 1 characterized by using the printing pattern for one screen according to the above-mentioned color ink also [means / to memorize by time sharing / color memory].

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Table of Contents] This invention is explained in order of the following.
Technical-problem The means for solving a technical problem which technical invention of the Field of the Invention former tends to solve (drawing 6 and drawing 7)
Operation (drawing 6 and drawing 7)
The whole example (1) card airline printer configuration (drawing 1 - drawing 5)
(2) The card airline printer of an example (drawing 3 , drawing 6 , and drawing 7)
(3) Other example effects of the invention [0002]
[Industrial Application] This invention is applied to the card airline printer which prints a color picture to card-like print media, concerning an airline printer, and is suitable.
[0003]
[Description of the Prior Art] Conventionally, the card airline printer which prints a color picture by the color hot printing method is in card-like print media. It is made as [print / on a card / by therefore carrying out hot printing of the colors, such as yellow applied to the ink ribbon at equal intervals based on the color picture information which read optically from color photography etc. in card / this kind of / airline printer, and was photoed with ****** color picture information and a video camera, a Magenta, cyanogen, and black, to a hot printing head in piles one by one on card-like print media (it being called a following card) / a color picture] (JP,62-11370,A).
[0004]
[Problem(s) to be Solved by the Invention] By the way, in a card airline printer, the film-like sheet arranged following yellow, a Magenta, cyanogen, and the charge of color dyeing of black on the ink ribbon is imprinted on a print side with a hot printing head, and there are some which laminate on a card, without this using the lamination equipment of dedication. moreover, the thing which prints the selector-card ******** ID card which is such a card airline printer, for example, is used for discernment of an ON appearance person etc. -- it is -- such a case -- the confidentiality, i.e., security nature, of an ID card -- a problem -- intermediary ****.
[0005] For example, in the banking card, the credit card, etc., there are some which were devised so that a hologram might be allotted and neither forgery nor an alteration could be easily performed on the lamination of a card face, and the card which has high security nature is realized. Therefore, if the ID card which can perform neither forgery nor an alteration easily can be printed also in case an ID card is printed using a card airline printer, it will be thought that the usefulness as a card airline printer may be markedly improved on a target. Moreover, not only with an ID card but with a common card airline printer, if processing like the mat processing by the film photo can be performed in order to raise the dignity of a print sample for example, it will be thought that the design-effectiveness of the card itself may be improved.
[0006] this invention was made in consideration of the above point, and it tends to propose the airline printer which may improve design-effectiveness while it prevents forgery and an alteration by the lamination formed on the print side with the simple configuration -- it comes out -- it is.
[0007]
[Means for Solving the Problem] In order to solve this technical problem, it sets to this invention. While performing predetermined printing on the print side of the print media 37 predetermined in the color ink Y, M, C, and K arranged on the ink ribbon 62 In the airline printer 20 which imprints the film-like sheet F arranged following color ink Y, M, C, and K on the ink ribbon 62 on a print side with the hot printing head 48 When imprinting the film-like sheet F with the hot printing head 48, a memory means 86 to memorize the printing pattern of 1 print region was established, and the print side top of print media 37 was covered, forming a printing pattern in the film-like sheet F with the hot printing head 48.
[0008]
[Function] Design-effectiveness may be improved while preventing forgery and an alteration by the lamination formed on the

print side with the simple configuration by having covered the print side top of print media 37, forming the printing pattern of 1 print region memorized by the film-like sheet F at the memory means 86 with the hot printing head 48.
[0009]
[Example] About a drawing, one example of this invention is explained in full detail below.
[0010] (1) In whole card airline printer block diagram 1 and drawing 2 , 20 shows a card airline printer as a whole, and the printing section, the card conveyance section, the image-processing section, various kinds of drives, etc. are built in the case 21 interior. The card cassette insertion opening 22 is formed in the front face of a case of the card airline printer 20, and this card slot 22 is loaded with the card cassette 23 by which two or more loading of the card as print media was carried out. Moreover, the ribbon cassette insertion opening 24 is formed in the front face of a case 21, and the predetermined ribbon cassette 25 is inserted. Furthermore, the LED display 27 grade which displays the operating state of an electric power switch 26 or the card airline printer 20 is prepared in the front face of a case 21. The card exhaust port 28 is formed in the side face of the case 21 of the opposite side to the side in which the card cassette insertion opening 22 was formed further again, and a card [finishing / printing] is discharged from this card exhaust port 28.
[0011] The card conveyance section and the printing section of the card airline printer 20 are constituted here, as shown in drawing 3 . That is, the card conveyance section 30 is moved to the card discharge location which shows the conveyance base 33 with an alternate long and short dash line from the card installation location shown by the drawing solid line, when the ball thread 32 prepared so that it might extend in the card conveyance direction shown by the arrow head a penetrates the nut section 34 prepared in the lower part of the conveyance base 33 and therefore makes a pulse motor 35 rotate a ball thread 32 by this. At this time, the conveyance base 33 moves to hard flow with the direction of an arrow head a, or this in the level condition, when supported free [sliding] by one pair of linear shafts (not shown) prepared so that it might extend in the conveyance direction shown by the arrow head a.
[0012] The card sending-out section 36 is formed in the near location of the card cassette 23, and the card 37 therefore accumulated into the card cassette 23 at this card sending-out section 36 is sent out in the direction of the conveyance base 33. Namely, the card sending-out section 36 is constituted by the kick plate 41 of the shape of a half moon fixed to the motor 38 and the motor 38 by the top face of the gearing 39 with which a rotation drive is therefore carried out, the gearing 40 which engages on a gearing 39, and a gearing 40, and the card 37 of the lowest location in the card cassette 23 begins to be kicked in the direction of the conveyance base 33 by rotating the kick plate 41 to predetermined timing.
[0013] Therefore, the card 37 which began to be kicked in the direction of the conveyance base 33 is laid on the conveyance base 33 by the roller 45 for card taking out by which a rotation drive is carried out by the motor 42 through a transfer device (not shown) while it is inserted between the roller 43 for card taking out by which a rotation drive is carried out by the motor 42, and 44. a cleaning roller 46 is formed here between the rollers 43 and 44 for card taking out, and the roller 45 for card taking out, and, thereby, it is the point at printing – the printing side of the intermediary card 37 is cleaned. Moreover, the card attaching part 47 is formed in the top face of the conveyance base 33, and this regulates horizontal migration of a card 37.
[0014] Moreover, the relief prevention members 49 and 50 fixed to the body chassis (not shown) are formed in the conveyance path of the both sides of the hot printing head 48. The relief prevention members 49 and 50 have two or more rollers 51, and prevent the relief of the card 37 from the conveyance base 33 under conveyance and printing by contacting the card 37 with which this roller 51 was laid on the conveyance base 33.
[0015] Therefore, the card 37 which printing ended here slides on the conveyance base 33 top in the direction of an arrow head a at the rollers 52, 53, and 54 for card discharge, and is discharged outside through the card exhaust port 28. Namely, the rollers 53 and 54 for discharge receive the driving force of a motor 55 through the gearings 56, 57, and 58 which engaged mutually, and rotate clockwise, and, as a result, the roller 52 for card discharge slides the card 37 on the conveyance base 33 in the direction of an arrow head a while it receives the driving force of a motor 55 through a gearing 56 and rotates clockwise. Moreover, therefore, the regulation to the direction of the front of the card 37 by the card attaching part 47 is canceled by the lever discharge shaft 59 prepared in the near location of the conveyance base 33 at this time.
[0016] In addition, in this card airline printer 20, therefore the location of the migration condition of a card 37 or the conveyance base 33 is detected by the photo sensor, and point-to-point control of a card 37 or the conveyance base 33 is carried out to a right location. Namely, a sensor S2 detects whether it was loaded with the card cassette 23. It detects whether a sensor S3 has a card 37 in the card cassette 23. Sensor S4 detects the rotation location of the kick plate 41, a sensor S5 detects whether the card 37 was taken out from the card cassette 23, it detects whether as for the sensor S6, the card 37 was laid on the conveyance base 33, and a sensor S7 detects whether the card 37 was discharged.
[0017] Moreover, based on the projection 60 for detection formed in the side face of the conveyance base 33, each sensor S8, S9, and S10 detect the location of the conveyance base 33. That is, a sensor S8 detects whether the conveyance base 33 arrived at the card supply location, sensor S9 detects whether the conveyance base 33 arrived at the printing starting position, and a sensor S10 detects whether the conveyance base 33 arrived at the card discharge location.
[0018] The printing section 31 is in the condition therefore supported to ribbon guides 63 and 64, and, therefore, rolls round the ink ribbon 62 wound around the supply reel 61 to the take-up reel 66 by which a rotation drive is carried out by the direct-

current (DC) motor 65. A torque limiter (not shown) is arranged at the supply reel 61, and a back tension is given to an ink ribbon 62 with fixed torque. Moreover, the encoder for wound diameter detection (not shown) which becomes a take-up reel 66 with a photo-sensor configuration is arranged.

[0019] Yellow, the Magenta, and the charge of color dyeing of cyanogen are applied to the ink ribbon 62 by predetermined die length as a color for 1 page, respectively. Moreover, the color identification marking from which an ink ribbon 62 discriminates each color in the head location of each charge of color dyeing while the page head mark is applied to the head location of the charge of color dyeing for each page is applied. Thereby, with an airline printer 20, the photo sensor (not shown) prepared in the transit path of an ink ribbon 62 detects a page head mark and color identification marking, respectively, and performs tension control of an ink ribbon 62 based on this detection result.

[0020] The head unit 70 in which the hot printing head 48 was formed is attached in the end of the pressurization lever 72 therefore held free [rotation] at the rotation shaft 71 free [attachment and detachment]. The other end of the pressurization lever 72 is attached in the cam plate 74 free [rocking] through the link 73. Thereby, the head unit 70 is positioned in the lowest location which the cam plate 74 goes up and down by therefore carrying out a rotation drive on a predetermined motor (not shown), descends from the mid-position shown in drawing 3 , the initial valve position which goes up from this mid-position and is estranged from an ink ribbon 62, and the mid-position, and contacts a card 37.

[0021] That is, in case the head unit 70 loads with an ink ribbon 62, it moves to an initial valve position, when a card 37 is laid on the conveyance base 33, it moves to the mid-position, and when the conveyance base 33 arrives at a printing starting position, it moves to the lowest location. Therefore in the card airline printer 20, it detects to the photo sensors S11 and S12 in which the rise-and-fall condition of this head unit 70 was prepared near the notch of the cam plate 74. The hot printing head 48 becomes with an edge two-dimensional configuration, and contacts the ****** card 37 crosswise [of the card 37 perpendicular to space / whole]. If a card 37 moves in the direction of an arrow head a by this, it is made as [carry out / to the whole printing side surface of a card 37 / the print of the image of a ****** request].

[0022] the printing operations sequence SP 0 which shows actual printing by this card airline printer 20 to drawing 4 and drawing 5 here – therefore, it performs. namely, – first – the close intermediary from the printing operations sequence SP 0 – in the following step SP 1, it judges whether the card 37 was picked out from the card cassette 23, and the card 37 was taken out in the following step SP 2, and when a negative result is obtained, error processing which displays ******, a card piece, etc. on a step SP 3 is performed.

[0023] On the other hand, when a card 37 is taken out, if it judges whether the ****** card 37 was taken out to a step SP 4, and the card 37 was taken out in a step SP 5 and a negative result is obtained, a step SP 4 will be repeated and, in the case of an affirmation result, the ****** card 37 will be laid on the conveyance base 33 at the following step SP 6. Then, in a step SP 7, the conveyance base 33 is positioned in the location of the hot printing head 48, and the conveyance base 33 is suspended. In addition, the hot printing head 48 is in the location (initial valve position) which rose at this time.

[0024] Next, in a step SP 8, the drive motor of the cam plate 74 drives, the hot printing head 48 is taken down to the mid-position, and the head of 1 page of an ink ribbon 62 is pulled out in the following step SP 9. Then, in the following step SP 10, the drive conditions of DC motor 65 are set up according to the wound diameter which detected the wound diameter of an ink ribbon 62 and was detected in a step SP 11.

[0025] Then, in a step SP 12, the drive motor of the cam plate 74 works again, the hot printing head 48 is taken down to the lowest location, DC motor 65 is driven in a step SP 13, rolling up of an ink ribbon 62 is started, and only the number (alpha) of predetermined Rhine moves the conveyance base 33 in a step SP 14. Next, the print of 1 classification by color is started in a step SP 15, and it sets to a step SP 16, and is a print of 1 classification by color. A print is carried out by 965 lines, in the following step SP 17, the print of 1 classification by color is ended, an ink ribbon 62 is exfoliated, and only the number (beta) of predetermined Rhine moves the conveyance base 33.

[0026] Then, when the hot printing head 48 is raised to the mid-position in a step SP 18, it judges whether the print of 3 classification by color was completed in the following step SP 19 and a negative result is obtained, it sets to the following step SP 20, and is about the conveyance base 33. It returns only several Rhine minutes which added alpha and beta Rhine to 965 lines. Moreover, in the following step SP 21, the head of the ink ribbon 62 of the following color is pulled out for print processing of ****** 1 classification by color to the above-mentioned step SP 12 after ******. If an affirmation result is soon obtained at a step SP 19, in a step SP 22, a card 37 is discharged and it is made as [carry out / on a card 37 / it does in this way and / a color print].

[0027] (2) the card airline printer of an example – do to be able to print ID card 37 used for discernment of an ON appearance person etc. as a card 37 in the card airline printer 20 of this example here – an ON appearance person's name, a photograph of his face, etc. are printed as a print side. Moreover, the print side top of this ID card 37 is laminated with the film-like sheet which the repeat pattern of a predetermined alphabetic character etc. spaced and was arranged in the shape of a pattern.

[0028] In the case of this example, as an ink ribbon 62 is shown in drawing 5 R> 5, the film-like sheet F is arranged following the yellow Y applied by predetermined die length as a color for 1 page, respectively, Magenta M, and each charge of color dyeing of Cyanogen C. This imprints and laminates the film-like sheet F on the print side of ID card 37 with the hot printing

head 48 in this card airline printer 20.
[0029] Moreover, ID card 37 which it spaces through the film-like sheet F by the pattern repeatedly, and a pattern is formed, neither forgery nor an alteration can do information on a print side easily at this time when [which laminate this film-like sheet F] it was printed by the film-like sheet F by printing the repeat pattern of a predetermined alphabetic character etc. with the hot printing head 48, but has high security nature can be printed.
[0030] In practice, this card airline printer 20 consists of circuit blocks as shown in drawing 6 , and is required. That is, the print data S1 inputted from a host computer (not shown) are once written in the frame memory 80 (80Y, 80M, 80C, 80K) which has the capacity of 1 print region for every color according to a color. This writing is controlled by the bus from CPU81 through the memory controller 82 connected to CPU81.
[0031] therefore, the print data S1 written in this frame memory 80 were read to the memory controller 82 to predetermined timing, among these the color print data SY, SM, and SC corresponding to yellow, a Magenta, and cyanogen responded to printing in the color tone ready circuit 83 (83Y, 83M, 83C) for every color, respectively -- color adjustment is carried out and it is inputted into a selector 85 through the masking circuit 84. Moreover, when there is no need for color adjustment or masking, color print-data SK for black written in the frame memory 80 is read to predetermined timing, and is sent out to a selector 85 as it is.
[0032] Furthermore, with the card airline printer 20 of this example, it has a frame memory 80 and the lamination memory 86 which has the storage capacity of 1 print region similarly, and lamination print-data SF showing the repeat pattern of the predetermined alphabetic character formed in the film-like sheet F etc. is once written in. Therefore, it is controlled by the memory controller 82 like [this lamination memory 86] a frame memory 80. Moreover, when there is no need for color adjustment or masking like black color print-data SK, lamination print-data SF written in the lamination memory 86 is read to predetermined timing, and is sent out to a selector 85 as it is.
[0033] Therefore, according to printing operations sequence which was mentioned above to drawing 4 and drawing 5 , a selector 85 makes sequential selection of the color print data SY, SM, and SC corresponding to yellow, a Magenta, and cyanogen, color print-data SK for black, and lamination print-data SF, considers as the printout data S2, and is sent out to control of CPU81 in a gamma correction circuit 87, respectively. Therefore, concentration resistance-welding-time conversion, i.e., gamma amendment, is performed, the printout data S3 obtained as a result are changed into print energy S4 by the thermal head controller 88, and a gamma correction circuit 87 is printed with the hot printing head 48 by the heat correction factor set up based on control of CPU81.
[0034] In the case of this card airline printer 20, in the above configuration, the sequential input of yellow, a Magenta, cyanogen and the black color print data SY, SM, SC, and SK, and lamination print-data SF is carried out as print data S1 which express a predetermined print side from a host computer side. Among these, color print data are written in the frame memory 80 (80Y, 80M, 80C, 80K) corresponding to each color, and lamination print-data SF is written in the lamination memory 86.
[0035] The print data SY, SM, SC, SK, and SF written in a frame memory 80 and the lamination memory 86 are masked while color adjustment is carried out if needed, and they are sent out to a selector 85. In a selector 85, while doing gamma amendment of at the order of the color print data SY, SM, SC, and SK and lamination print-data SF according to color printing sequence, it changes into print energy and the hot printing head 48 is supplied.
[0036] Thereby, with this card airline printer 20, while color-printing a name, a photograph of his face, etc., for example as an ON appearance person's identification information, it is made as [print / ID card 37 laminated with the film-like sheet F which the repeat pattern of a predetermined alphabetic character etc. spaced and was arranged in the shape of a pattern]. Thus, by laminating with the film-like sheet F with which ID card 37 was spaced and the pattern was allotted, ID card 37 which neither forgery nor an alteration can be performed easily, but has high security nature with the simple configuration which newly formed the lamination memory 86 can be printed.
[0037] By having made it imprint, driving the hot printing head 48 with the lamination print data written in the lamination memory 86, when imprinting the film-like sheet F with the hot printing head 48 according to the above configuration ID card 37 can be laminated with the film-like sheet F with which the printing pattern according to lamination print-data SF was formed, and the card airline printer 20 which can print easily ID card 37 with which forgery and an alteration have difficult and high security nature can be realized.
[0038] (3) Although a card is laminated with the film-like sheet which spaced by the repeat pattern of a predetermined alphabetic character etc. as lamination print data, and formed the pattern in other examples, in addition above-mentioned examples and high security nature was obtained Not only this but a checker, a concavo-convex predetermined pattern, etc. are sufficient as lamination print data, and if it does in this way, they can perform processing like the mat processing by the film photo on a print side, and may improve the design-effectiveness of the card itself.
[0039] moreover, an above-mentioned example -- setting -- the frame memory for color print data -- in addition, although the case where the lamination memory for lamination print data was prepared was described, when the frame memory for color printing is used by time sharing, even if it also uses lamination print data by time sharing following the data for color printing,

the same effectiveness as an above-mentioned example can be realized.
[0040] in a further above-mentioned example, although applied to the card airline printer which prints predetermined information on print sides, such as an ID card, as an airline printer by this invention, this invention applies widely and is suitable for the airline printer printed to not only this but paper, or other print media -- it is a what thing.
[0041]
[Effect of the Invention] As mentioned above, according to this invention, while preventing forgery and an alteration by the lamination formed on the print side with the simple configuration by having covered the print side top of print media, forming the printing pattern of 1 print region memorized by the film-like sheet with the hot printing head at the memory means, the airline printer which may improve design-effectiveness is realizable.

[Translation done.]

TECHNICAL FIELD

[Industrial Application] This invention is applied to the card airline printer which prints a color picture to card-like print media, concerning an airline printer, and is suitable.

[Translation done.]

PRIOR ART

[Description of the Prior Art] Conventionally, the card airline printer which prints a color picture by the color hot printing method is in card-like print media. It is made as [print / on a card / by therefore carrying out hot printing of the colors, such as yellow applied to the ink ribbon at equal intervals based on the color picture information which read optically from color photography etc. in card / this kind of / airline printer, and was photoed with ****** color picture information and a video camera, a Magenta, cyanogen, and black, to a hot printing head in piles one by one on card-like print media (it being called a following card) / a color picture] (JP,62-11370,A).

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, according to this invention, while preventing forgery and an alteration by the lamination formed on the print side with the simple configuration by having covered the print side top of print media, forming the printing pattern of 1 print region memorized by the film-like sheet with the hot printing head at the memory means, the airline printer which may improve design-effectiveness is realizable.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] By the way, in a card airline printer, the film-like sheet arranged following yellow, a Magenta, cyanogen, and the charge of color dyeing of black on the ink ribbon is imprinted on a print side with a hot printing head, and there are some which laminate on a card, without this using the lamination equipment of dedication. moreover, the thing which prints the selector-card ******** ID card which is such a card airline printer, for example, is used for discernment of an ON appearance person etc. -- it is -- such a case -- the confidentiality, i.e., security nature, of an ID card -- a problem -- intermediary ****.

[0005] For example, in the banking card, the credit card, etc., there are some which were devised so that a hologram might be allotted and neither forgery nor an alteration could be easily performed on the lamination of a card face, and the card which has high security nature is realized. Therefore, if the ID card which can perform neither forgery nor an alteration easily can be printed also in case an ID card is printed using a card airline printer, it will be thought that the usefulness as a card airline printer may be markedly improved on a target. Moreover, not only with an ID card but with a common card airline printer, if processing like the mat processing by the film photo can be performed in order to raise the dignity of a print sample for example, it will be thought that the design-effectiveness of the card itself may be improved.

[0006] this invention was made in consideration of the above point, and it tends to propose the airline printer which may improve design-effectiveness while it prevents forgery and an alteration by the lamination formed on the print side with the simple configuration -- it comes out -- it is.

[Translation done.]

MEANS

[Means for Solving the Problem] In order to solve this technical problem, it sets to this invention. While performing predetermined printing on the print side of the print media 37 predetermined in the color ink Y, M, C, and K arranged on the ink ribbon 62 In the airline printer 20 which imprints the film-like sheet F arranged following color ink Y, M, C, and K on the ink ribbon 62 on a print side with the hot printing head 48 When imprinting the film-like sheet F with the hot printing head 48, a memory means 86 to memorize the printing pattern of 1 print region was established, and the print side top of print media 37 was covered, forming a printing pattern in the film-like sheet F with the hot printing head 48.

[Translation done.]

OPERATION

[Function] Design-effectiveness may be improved while preventing forgery and an alteration by the lamination formed on the print side with the simple configuration by having covered the print side top of print media 37, forming the printing pattern of 1 print region memorized by the film-like sheet F at the memory means 86 with the hot printing head 48.

[Translation done.]

EXAMPLE

[Example] About a drawing, one example of this invention is explained in full detail below.
[0010] (1) In whole card airline printer block diagram 1 and drawing 2 , 20 shows a card airline printer as a whole, and the printing section, the card conveyance section, the image-processing section, various kinds of drives, etc. are built in the case 21 interior. The card cassette insertion opening 22 is formed in the front face of a case of the card airline printer 20, and this card slot 22 is loaded with the card cassette 23 by which two or more loading of the card as print media was carried out. Moreover, the ribbon cassette insertion opening 24 is formed in the front face of a case 21, and the predetermined ribbon cassette 25 is inserted. Furthermore, the LED display 27 grade which displays the operating state of an electric power switch 26 or the card airline printer 20 is prepared in the front face of a case 21. The card exhaust port 28 is formed in the side face of the case 21 of the opposite side to the side in which the card cassette insertion opening 22 was formed further again, and a card [finishing / printing] is discharged from this card exhaust port 28.
[0011] The card conveyance section and the printing section of the card airline printer 20 are constituted here, as shown in drawing 3 . That is, the card conveyance section 30 is moved to the card discharge location which shows the conveyance base 33 with an alternate long and short dash line from the card installation location shown by the drawing solid line, when the ball thread 32 prepared so that it might extend in the card conveyance direction shown by the arrow head a penetrates the nut section 34 prepared in the lower part of the conveyance base 33 and therefore makes a pulse motor 35 rotate a ball thread 32 by this. At this time, the conveyance base 33 moves to hard flow with the direction of an arrow head a, or this in the level condition, when supported free [sliding] by one pair of linear shafts (not shown) prepared so that it might extend in the conveyance direction shown by the arrow head a.
[0012] The card sending-out section 36 is formed in the near location of the card cassette 23, and the card 37 therefore accumulated into the card cassette 23 at this card sending-out section 36 is sent out in the direction of the conveyance base 33. Namely, the card sending-out section 36 is constituted by the kick plate 41 of the shape of a half moon fixed to the motor 38 and the motor 38 by the top face of the gearing 39 with which a rotation drive is therefore carried out, the gearing 40 which engages on a gearing 39, and a gearing 40, and the card 37 of the lowest location in the card cassette 23 begins to be kicked in the direction of the conveyance base 33 by rotating the kick plate 41 to predetermined timing.
[0013] Therefore, the card 37 which began to be kicked in the direction of the conveyance base 33 is laid on the conveyance base 33 by the roller 45 for card taking out by which a rotation drive is carried out by the motor 42 through a transfer device (not shown) while it is inserted between the roller 43 for card taking out by which a rotation drive is carried out by the motor 42, and 44. a cleaning roller 46 is formed here between the rollers 43 and 44 for card taking out, and the roller 45 for card taking out, and, thereby, it is the point at printing – the printing side of the intermediary card 37 is cleaned. Moreover, the card attaching part 47 is formed in the top face of the conveyance base 33, and this regulates horizontal migration of a card 37.
[0014] Moreover, the relief prevention members 49 and 50 fixed to the body chassis (not shown) are formed in the conveyance path of the both sides of the hot printing head 48. The relief prevention members 49 and 50 have two or more rollers 51, and prevent the relief of the card 37 from the conveyance base 33 under conveyance and printing by contacting the card 37 with which this roller 51 was laid on the conveyance base 33.
[0015] Therefore, the card 37 which printing ended here slides on the conveyance base 33 top in the direction of an arrow head a at the rollers 52, 53, and 54 for card discharge, and is discharged outside through the card exhaust port 28. Namely, the rollers 53 and 54 for discharge receive the driving force of a motor 55 through the gearings 56, 57, and 58 which engaged mutually, and rotate clockwise, and, as a result, the roller 52 for card discharge slides the card 37 on the conveyance base 33 in the direction of an arrow head a while it receives the driving force of a motor 55 through a gearing 56 and rotates clockwise. Moreover, therefore, the regulation to the direction of the front of the card 37 by the card attaching part 47 is canceled by the lever discharge shaft 59 prepared in the near location of the conveyance base 33 at this time.
[0016] In addition, in this card airline printer 20, therefore the location of the migration condition of a card 37 or the conveyance base 33 is detected by the photo sensor, and point-to-point control of a card 37 or the conveyance base 33 is carried out to a right location. Namely, a sensor S2 detects whether it was loaded with the card cassette 23. It detects whether a sensor S3

has a card 37 in the card cassette 23. Sensor S4 detects the rotation location of the kick plate 41, a sensor S5 detects whether the card 37 was taken out from the card cassette 23, it detects whether as for the sensor S6, the card 37 was laid on the conveyance base 33, and a sensor S7 detects whether the card 37 was discharged.

[0017] Moreover, based on the projection 60 for detection formed in the side face of the conveyance base 33, each sensor S8, S9, and S10 detect the location of the conveyance base 33. That is, a sensor S8 detects whether the conveyance base 33 arrived at the card supply location, sensor S9 detects whether the conveyance base 33 arrived at the printing starting position, and a sensor S10 detects whether the conveyance base 33 arrived at the card discharge location.

[0018] The printing section 31 is in the condition therefore supported to ribbon guides 63 and 64, and, therefore, rolls round the ink ribbon 62 wound around the supply reel 61 to the take-up reel 66 by which a rotation drive is carried out by the direct-current (DC) motor 65. A torque limiter (not shown) is arranged at the supply reel 61, and a back tension is given to an ink ribbon 62 with fixed torque. Moreover, the encoder for wound diameter detection (not shown) which becomes a take-up reel 66 with a photo-sensor configuration is arranged.

[0019] Yellow, the Magenta, and the charge of color dyeing of cyanogen are applied to the ink ribbon 62 by predetermined die length as a color for 1 page, respectively. Moreover, the color identification marking from which an ink ribbon 62 discriminates each color in the head location of each charge of color dyeing while the page head mark is applied to the head location of the charge of color dyeing for each page is applied. Thereby, with an airline printer 20, the photo sensor (not shown) prepared in the transit path of an ink ribbon 62 detects a page head mark and color identification marking, respectively, and performs tension control of an ink ribbon 62 based on this detection result.

[0020] The head unit 70 in which the hot printing head 48 was formed is attached in the end of the pressurization lever 72 therefore held free [rotation] at the rotation shaft 71 free [attachment and detachment]. The other end of the pressurization lever 72 is attached in the cam plate 74 free [rocking] through the link 73. Thereby, the head unit 70 is positioned in the lowest location which the cam plate 74 goes up and down by therefore carrying out a rotation drive on a predetermined motor (not shown), descends from the mid-position shown in drawing 3 , the initial valve position which goes up from this mid-position and is estranged from an ink ribbon 62, and the mid-position, and contacts a card 37.

[0021] That is, in case the head unit 70 loads with an ink ribbon 62, it moves to an initial valve position, when a card 37 is laid on the conveyance base 33, it moves to the mid-position, and when the conveyance base 33 arrives at a printing starting position, it moves to the lowest location. Therefore in the card airline printer 20, it detects to the photo sensors S11 and S12 in which the rise-and-fall condition of this head unit 70 was prepared near the notch of the cam plate 74. The hot printing head 48 becomes with an edge two-dimensional configuration, and contacts the ****** card 37 crosswise [of the card 37 perpendicular to space / whole]. If a card 37 moves in the direction of an arrow head a by this, it is made as [carry out / to the whole printing side surface of a card 37 / the print of the image of a ****** request].

[0022] the printing operations sequence SP 0 which shows actual printing by this card airline printer 20 to drawing 4 and drawing 5 here -- therefore, it performs. namely, -- first -- the close intermediary from the printing operations sequence SP 0 -- in the following step SP 1, it judges whether the card 37 was picked out from the card cassette 23, and the card 37 was taken out in the following step SP 2, and when a negative result is obtained, error processing which displays ******, a card piece, etc. on a step SP 3 is performed.

[0023] On the other hand, when a card 37 is taken out, if it judges whether the ****** card 37 was taken out to a step SP 4, and the card 37 was taken out in a step SP 5 and a negative result is obtained, a step SP 4 will be repeated and, in the case of an affirmation result, the ****** card 37 will be laid on the conveyance base 33 at the following step SP 6. Then, in a step SP 7, the conveyance base 33 is positioned in the location of the hot printing head 48, and the conveyance base 33 is suspended. In addition, the hot printing head 48 is in the location (initial valve position) which rose at this time.

[0024] Next, in a step SP 8, the drive motor of the cam plate 74 drives, the hot printing head 48 is taken down to the mid-position, and the head of 1 page of an ink ribbon 62 is pulled out in the following step SP 9. Then, in the following step SP 10, the drive conditions of DC motor 65 are set up according to the wound diameter which detected the wound diameter of an ink ribbon 62 and was detected in a step SP 11.

[0025] Then, in a step SP 12, the drive motor of the cam plate 74 works again, the hot printing head 48 is taken down to the lowest location, DC motor 65 is driven in a step SP 13, rolling up of an ink ribbon 62 is started, and only the number (alpha) of predetermined Rhine moves the conveyance base 33 in a step SP 14. Next, the print of 1 classification by color is started in a step SP 15, and it sets to a step SP 16, and is a print of 1 classification by color. A print is carried out by 965 lines, in the following step SP 17, the print of 1 classification by color is ended, an ink ribbon 62 is exfoliated, and only the number (beta) of predetermined Rhine moves the conveyance base 33.

[0026] Then, when the hot printing head 48 is raised to the mid-position in a step SP 18, it judges whether the print of 3 classification by color was completed in the following step SP 19 and a negative result is obtained, it sets to the following step SP 20, and is about the conveyance base 33. It returns only several Rhine minutes which added alpha and beta Rhine to 965 lines. Moreover, in the following step SP 21, the head of the ink ribbon 62 of the following color is pulled out for print processing of ****** 1 classification by color to the above-mentioned step SP 12 after ******. If an affirmation result is soon

obtained at a step SP 19, in a step SP 22, a card 37 is discharged and it is made as [carry out / on a card 37 / it does in this way and / a color print].
[0027] (2) the card airline printer of an example -- do to be able to print ID card 37 used for discernment of an ON appearance person etc. as a card 37 in the card airline printer 20 of this example here -- an ON appearance person's name, a photograph of his face, etc. are printed as a print side. Moreover, the print side top of this ID card 37 is laminated with the film-like sheet which the repeat pattern of a predetermined alphabetic character etc. spaced and was arranged in the shape of a pattern.
[0028] In the case of this example, as an ink ribbon 62 is shown in drawing 5 R> 5, the film-like sheet F is arranged following the yellow Y applied by predetermined die length as a color for 1 page, respectively, Magenta M, and each charge of color dyeing of Cyanogen C. This imprints and laminates the film-like sheet F on the print side of ID card 37 with the hot printing head 48 in this card airline printer 20.
[0029] Moreover, ID card 37 which it spaces through the film-like sheet F by the pattern repeatedly, and a pattern is formed, neither forgery nor an alteration can do information on a print side easily at this time when [which laminate this film-like sheet F] it was printed by the film-like sheet F by printing the repeat pattern of a predetermined alphabetic character etc. with the hot printing head 48, but has high security nature can be printed.
[0030] In practice, this card airline printer 20 consists of circuit blocks as shown in drawing 6 , and is required. That is, the print data S1 inputted from a host computer (not shown) are once written in the frame memory 80 (80Y, 80M, 80C, 80K) which has the capacity of 1 print region for every color according to a color. This writing is controlled by the bus from CPU81 through the memory controller 82 connected to CPU81.
[0031] therefore, the print data S1 written in this frame memory 80 were read to the memory controller 82 to predetermined timing, among these the color print data SY, SM, and SC corresponding to yellow, a Magenta, and cyanogen responded to printing in the color tone ready circuit 83 (83Y, 83M, 83C) for every color, respectively -- color adjustment is carried out and it is inputted into a selector 85 through the masking circuit 84. Moreover, when there is no need for color adjustment or masking, color print-data SK for black written in the frame memory 80 is read to predetermined timing, and is sent out to a selector 85 as it is.
[0032] Furthermore, with the card airline printer 20 of this example, it has a frame memory 80 and the lamination memory 86 which has the storage capacity of 1 print region similarly, and lamination print-data SF showing the repeat pattern of the predetermined alphabetic character formed in the film-like sheet F etc. is once written in. Therefore, it is controlled by the memory controller 82 like [this lamination memory 86] a frame memory 80. Moreover, when there is no need for color adjustment or masking like black color print-data SK, lamination print-data SF written in the lamination memory 86 is read to predetermined timing, and is sent out to a selector 85 as it is.
[0033] Therefore, according to printing operations sequence which was mentioned above to drawing 4 and drawing 5 , a selector 85 makes sequential selection of the color print data SY, SM, and SC corresponding to yellow, a Magenta, and cyanogen, color print-data SK for black, and lamination print-data SF, considers as the printout data S2, and is sent out to control of CPU81 in a gamma correction circuit 87, respectively. Therefore, concentration resistance-welding-time conversion, i.e., gamma amendment, is performed, the printout data S3 obtained as a result are changed into print energy S4 by the thermal head controller 88, and a gamma correction circuit 87 is printed with the hot printing head 48 by the heat correction factor set up based on control of CPU81.
[0034] In the case of this card airline printer 20, in the above configuration, the sequential input of yellow, a Magenta, cyanogen and the black color print data SY, SM, SC, and SK, and lamination print-data SF is carried out as print data S1 which express a predetermined print side from a host computer side. Among these, color print data are written in the frame memory 80 (80Y, 80M, 80C, 80K) corresponding to each color, and lamination print-data SF is written in the lamination memory 86.
[0035] The print data SY, SM, SC, SK, and SF written in a frame memory 80 and the lamination memory 86 are masked while color adjustment is carried out if needed, and they are sent out to a selector 85. In a selector 85, while doing gamma amendment of at the order of the color print data SY, SM, SC, and SK and lamination print-data SF according to color printing sequence, it changes into print energy and the hot printing head 48 is supplied.
[0036] Thereby, with this card airline printer 20, while color-printing a name, a photograph of his face, etc., for example as an ON appearance person's identification information, it is made as [print / ID card 37 laminated with the film-like sheet F which the repeat pattern of a predetermined alphabetic character etc. spaced and was arranged in the shape of a pattern]. Thus, by laminating with the film-like sheet F with which ID card 37 was spaced and the pattern was allotted, ID card 37 which neither forgery nor an alteration can be performed easily, but has high security nature with the simple configuration which newly formed the lamination memory 86 can be printed.
[0037] By having made it imprint, driving the hot printing head 48 with the lamination print data written in the lamination memory 86, when imprinting the film-like sheet F with the hot printing head 48 according to the above configuration ID card 37 can be laminated with the film-like sheet F with which the printing pattern according to lamination print-data SF was formed, and the card airline printer 20 which can print easily ID card 37 with which forgery and an alteration have difficult and high

security nature can be realized.

[0038] (3) Although a card is laminated with the film-like sheet which spaced by the repeat pattern of a predetermined alphabetic character etc. as lamination print data, and formed the pattern in other examples, in addition above-mentioned examples and high security nature was obtained Not only this but a checker, a concavo-convex predetermined pattern, etc. are sufficient as lamination print data, and if it does in this way, they can perform processing like the mat processing by the film photo on a print side, and may improve the design-effectiveness of the card itself.

[0039] moreover, an above-mentioned example -- setting -- the frame memory for color print data -- in addition, although the case where the lamination memory for lamination print data was prepared was described, when the frame memory for color printing is used by time sharing, even if it also uses lamination print data by time sharing following the data for color printing, the same effectiveness as an above-mentioned example can be realized.

[0040] in a further above-mentioned example, although applied to the card airline printer which prints predetermined information on print sides, such as an ID card, as an airline printer by this invention, this invention applies widely and is suitable for the airline printer printed to not only this but paper, or other print media -- it is a what thing.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective view showing the appearance configuration of one example of the airline printer by this invention.
[Drawing 2] It is the perspective view showing the appearance configuration of one example of the airline printer by this invention.
[Drawing 3] It is the approximate line-side elevation showing the conveyance section and the printing section in one example of the airline printer by this invention.
[Drawing 4] It is the flow chart with which explanation of the printing actuation in the card airline printer of an example is presented.
[Drawing 5] It is the flow chart with which explanation of the printing actuation in the card airline printer of an example is presented.
[Drawing 6] It is the approximate line Fig. with which explanation of the ink ribbon used for the card airline printer of an example is presented.
[Drawing 7] It is the block diagram showing the circuitry of the card airline printer of an example.
[Description of Notations]
20 [.. Conveyance section,] .... A card airline printer, 21 .. A case, 28 .. A card exhaust port, 30 31 [.. Nut section,] .... The printing section, 32 .. A ball thread, 33 .. A conveyance base, 34 36 [.. The roller for card taking out,] .... The card sending-out section, 37 .. A card, 41 .. A kick plate, 43-45 46 .... A cleaning roller, 47 .. A card attaching part, 48 .. Hot printing head, 49 50 [.. A lever discharge shaft, 60 / .. The projection for detection, 61 / .. A supply reel, 62 / .. An ink ribbon, 66 / .. Take-up reel] .... A relief prevention member, 51A-51D .. A roller, 52-54 .. The roller for card discharge, 59
70 [.. A cam plate, S2-S12 / .. Sensor.] .... A head unit, 72 .. A pressurization lever, 73 .. A lever, 74

[Translation done.]

DRAWINGS

[Drawing 1]

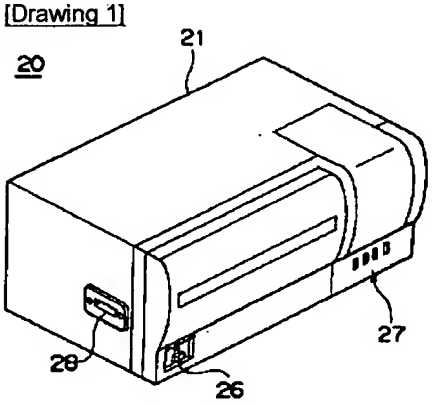

図1　外観構成（１）

[Drawing 2]

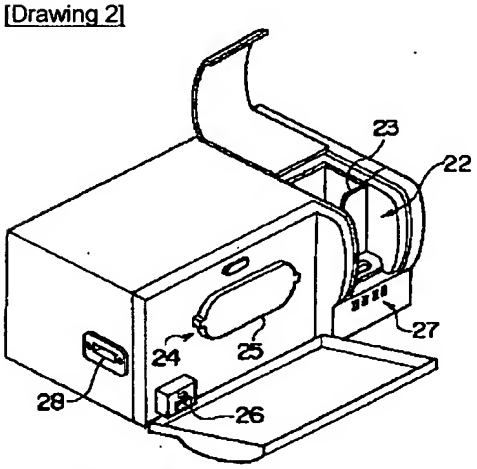

図2　外観構成（２）

[Drawing 3]

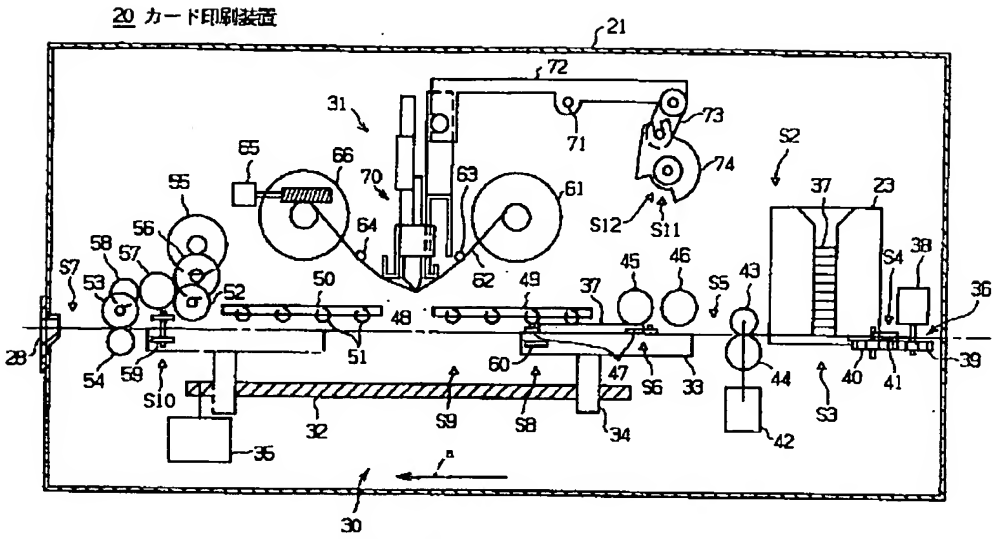

図3 搬送部及び印刷部の構成

[Drawing 4]

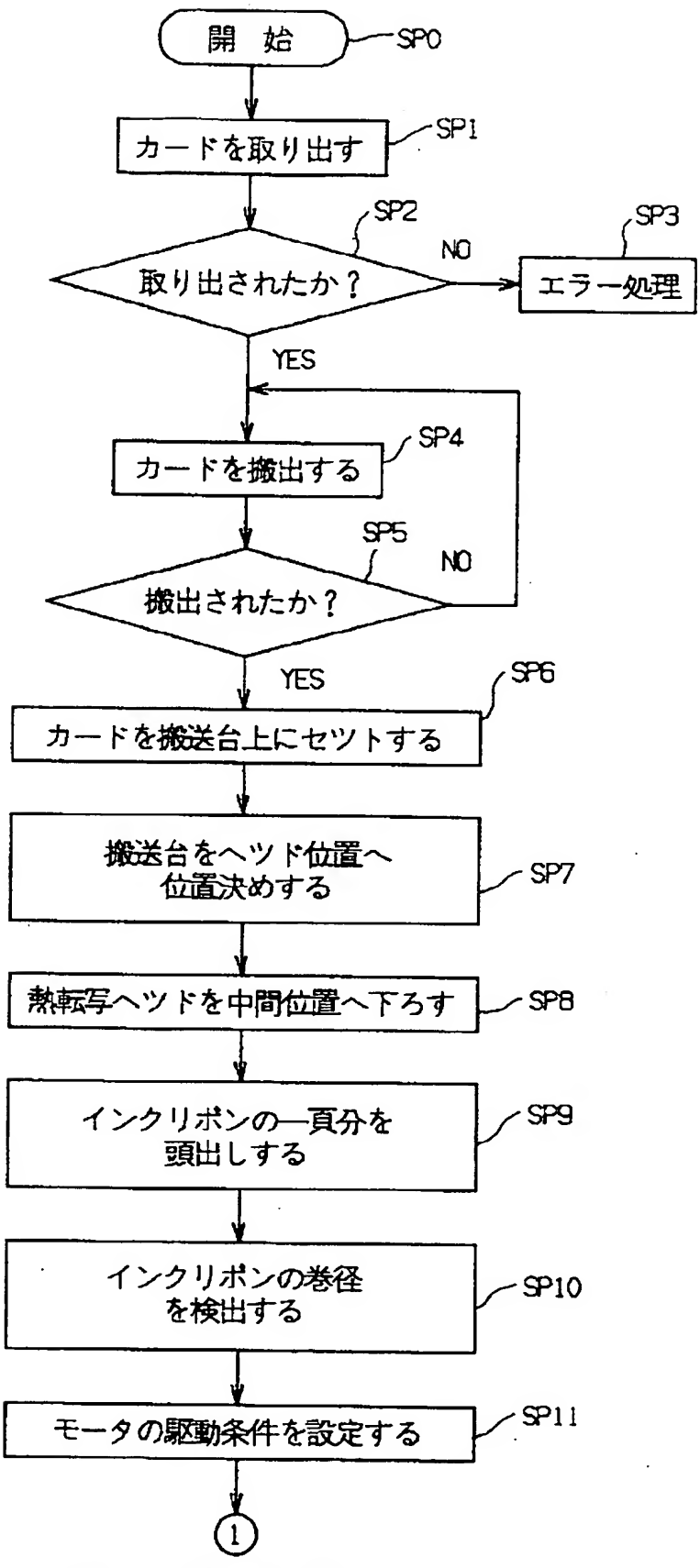

図4　印刷動作手順（１）

[Drawing 5]

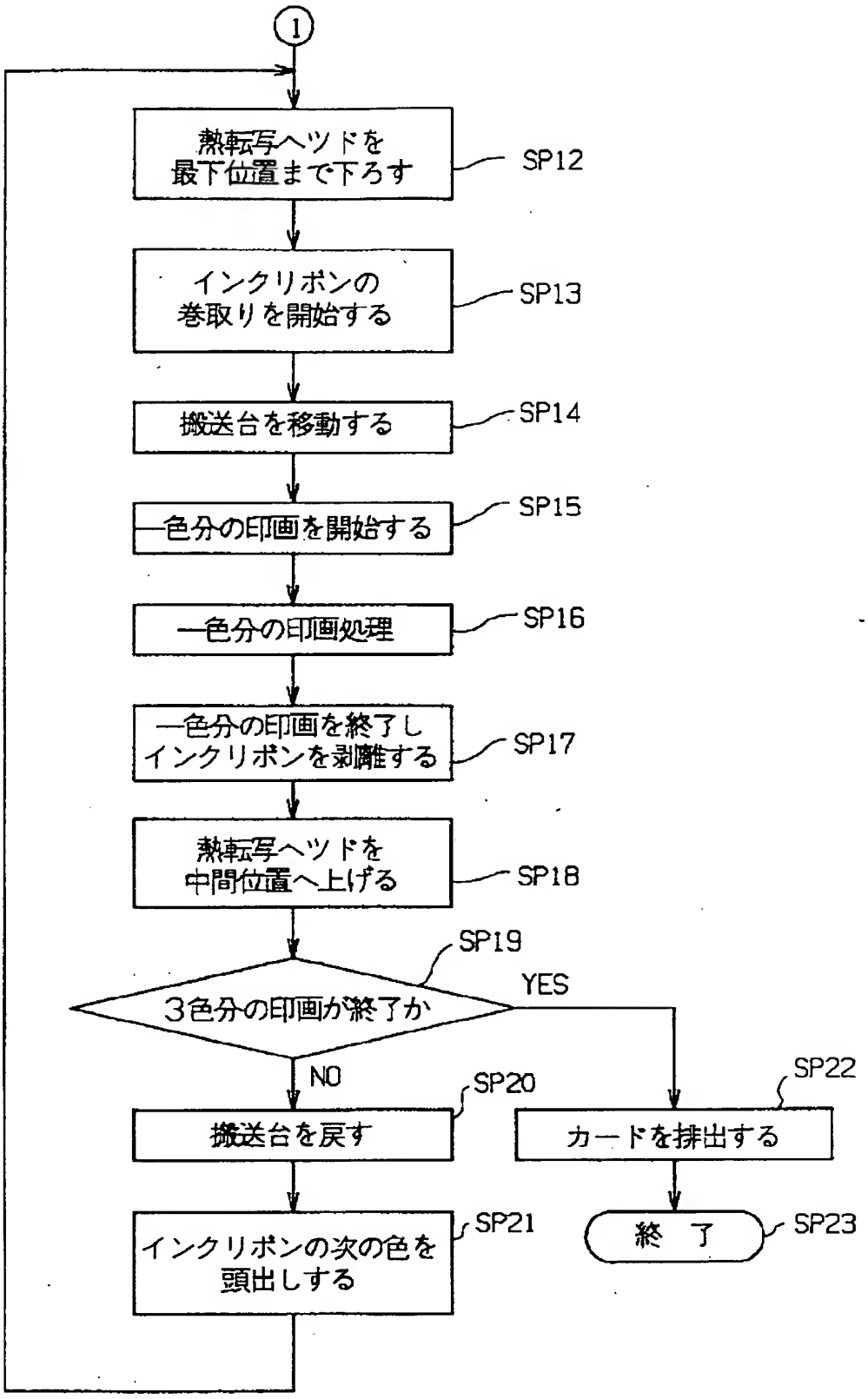

図5 印刷動作手順（２）

[Drawing 6]

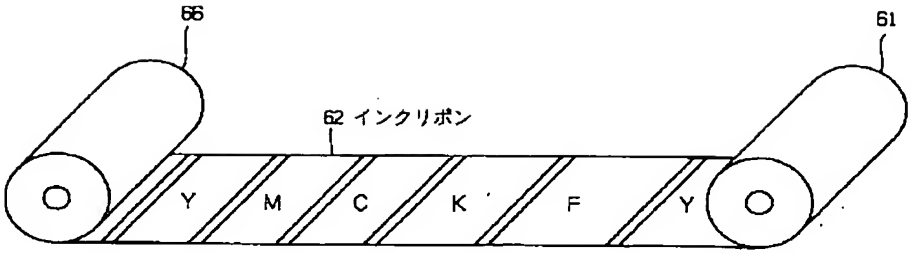

図6　実施例のインクリボン

[Drawing 7]

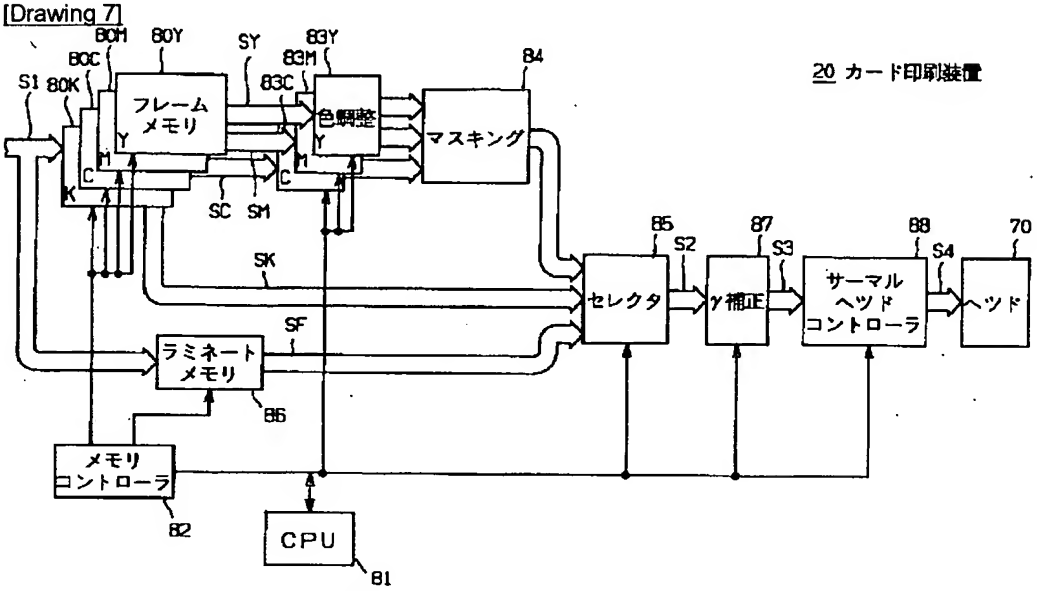

図7　実施例によるカード印刷装置

[Translation done.]